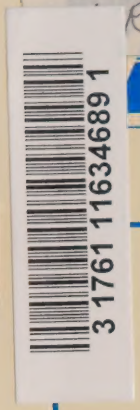




# Analytical Studies Branch

## SMALL COMMUNITIES IN ATLANTIC CANADA: Their Industrial Structure and Labour Market Conditions in the Early 1980s

by

Garnett Picot and John Heath

No. 40



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# SMALL COMMUNITIES IN ATLANTIC CANADA: Their Industrial Structure and Labour Market Conditions in the Early 1980s

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Business and Labour Market Analysis Group
Analytical Studies Branch
Statistics Canada
1991



Aussi disponible en français

Abstract

This paper uses a new experimental data source developed within the Business and Labour Market Analysis Group in Statistics Canada to examine changes in the industrial structure of small communities in Atlantic Canada, and how workers from these communities fared over the 1981-1986 period. Communities are classified according to industrial structure and size, and comparisons are made between small and large communities, and among communities with different industrial structures. Four questions are addressed:

(1) In terms of industrial structure, what differentiates small from large communities,
(2) Did the resource based communities become more diversified over this period as the resource based industries turned down,
(3) Did workers from small communities face a more difficult labour market than those from larger centres,
(4) What were the differences in the labour market experiences of workers from four communities with very different industrial structures over the 1981-1986 period.

Major differences between small and large communities are observed, both in their industrial structure and in the labour market experiences of their workers over this period. When earnings of individuals are examined, it is observed that there is tremendous volatility in earnings for all groups of workers. Average change in real earnings mask the fact that many workers take substantial cuts in real earnings over a period, while others have very large gains.

Keywords: Single-industry, natural-resource based, industrial structure, labour adjustment.

# Small Communities in Atlantic Canada: Their Industrial Structure and Labour Market Conditions in the Early 1980s

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Business and Labour Market Analysis Group
Statistics Canada

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## Introduction and Objective

The impact of economic cycles on small natural-resource based towns and their workers can be quite severe. In Atlantic Canada, natural-resource based communities depend mainly on the fishing, forestry and mining and their related processing industries. During the recession of the early 1980s employment in the natural-resource sector as a whole[1] fell by about 9% in Atlantic Canada (chart 1). There was some recovery during the 1986-89 period but the impact of the cyclical downturn on towns with high dependency on these industries must have been significant.

And there are other events besides a downturn in the economic cycle which can negatively influence natural-resource dominant communities. These include:

(1) the depletion of a mine or some other natural-resource base conected with the town;

(2) structural (or long term) changes in the demand for a natural resource or related manufactured commodities which may result in a permanent decline in employment opportunities in a town;

(3) shifts in international prices for natural-resource commodities which renders plants unprofitable and candidates for closure. Commodity prices over the early and mid 1980s were declining in many cases, and prices index of 33 commodities (excluding energy) fell 25% from 1981 to 1986[2].

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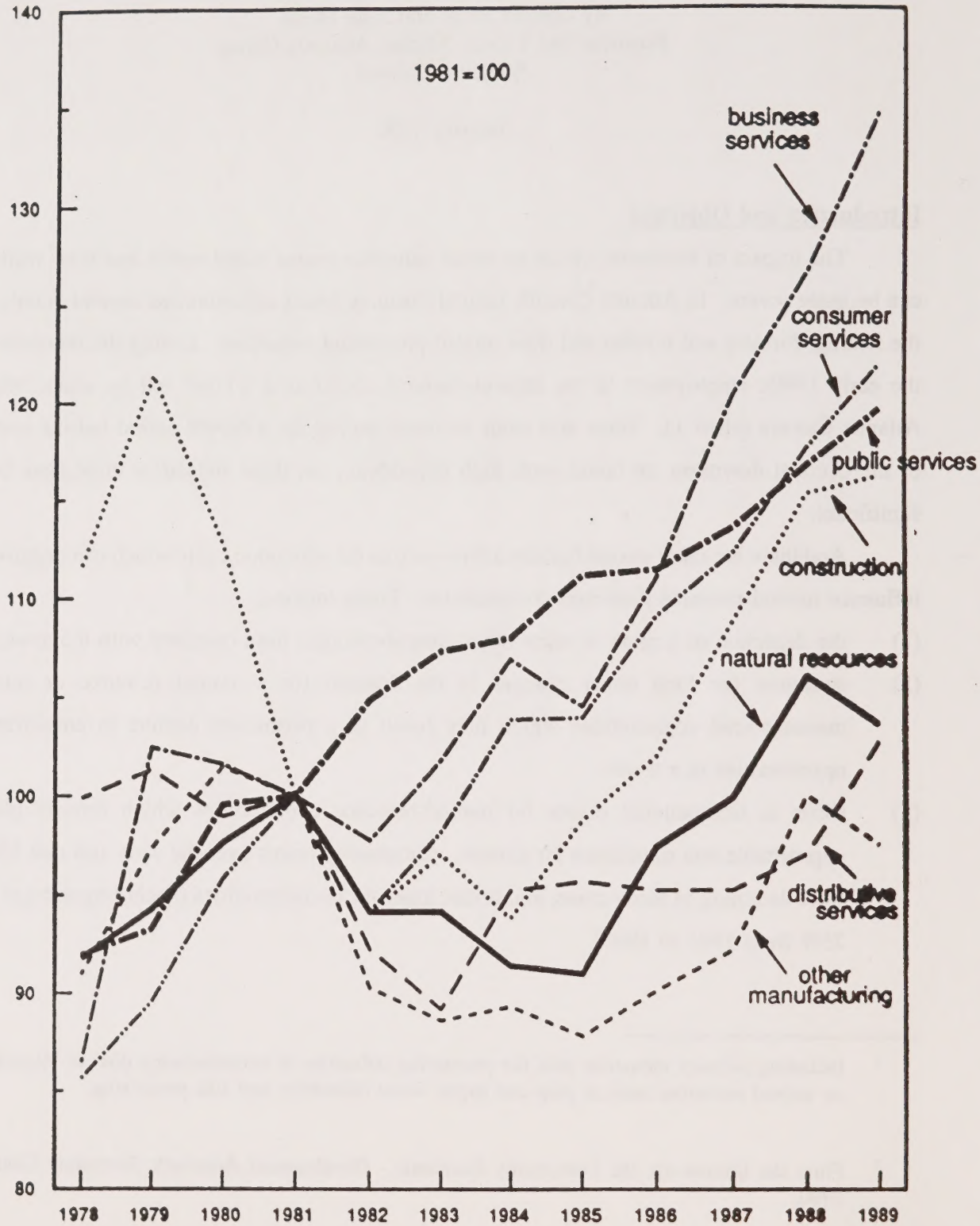
[1] Including primary industries plus the processing industries in manufacturing directly dependent on natural resources such as pulp and paper, wood industries, and fish processing.

[2] From the Bottom-up; the Community Economic - Development Approach, Economic Council, 1990.

CHART 1

## Index of Employment Growth in Atlantic Canada, by Industry 1978-89



These forces may negatively influence any town and its workers, but communities with a large proportion of their payroll in the natural resources sector may be particularly vulnerable to such economic forces. There has long been an interest in single-industry (usually small natural-resource based) communities, and what happens to their workers in economic downturns. It is estimated that in Canada up to one-quarter of the rural worker population live in such communities with their fragile economies. They have been the subject of various reports, but there is relatively little information on what happens to workers. (e.g. CEIC, 1987, CEIC, 1988, Royal Commission of Employment and Unemployment, 1986). In particular, there has been little work placing the experience of natural-resource communities and their workers within a context. Comparisons with other types of communities are necessary to do this.

Of course, the major concern to small resource-based communities is the vulnerability of their economies to the kinds of economic events mentioned earlier, and the resulting effect on the labour market conditions for workers. Unemployment rises, and workers and their families may be forced to move.

But to assess the effect on the workers requires longitudinal data. How flexible is the labour market in these areas and do workers in fact move to locate new employment in the face of a very tight labour market in their community? And when they move does adjustment occur quickly, or do their earning remain depressed and unemployment high? And do conditions in the community improve such that workers who remained locate employment and their earnings rise? There are two requirements needed to answer such questions. First, one needs longitudinal data on the workers to determine what happens to their earnings and unemployment over a number of years. Second, it is necessary to have a benchmark or point of comparison to determine if the labour market conditions faced by workers from these communities was truly significantly different from the conditions encountered by workers from other types of communities. Even when special surveys are carried out to track workers from resource-based communities over time, there is rarely a "control group" against which to compare the findings from the surveys. The experimental data source used in this work can provide both longitudinal

data and data on comparison groups because virtually all workers in the Atlantic area are included in the database.

If adjustment policies are to be targeted to workers in particular types of industries which are being affected by structural change, it may be necessary to consider the type of community (labour market) in which they are located. As will be shown here, workers in large, diversified communities face very different labour market conditions than those in smaller, concentrated labour markets. In order to assess if such targeting is reasonable, comparisons of the adjustment experiences of workers in various types of labour market is necessary.

Obviously the industrial structure of a town is important. Diversified or public service based communities would be expected to experience less impact from an economic cycle than natural-resource dominated communities, given the patterns of employment change observed in chart 1. It is to achieve this characteristic of employment and economic stability that communities seek diversification. Recent work by the Economic Council and others discuss means whereby single-industry communities can foster development strategies which encourage growth and diversification from within (see Economic Council, 1990 and Decter, 1989). More diversified communities and workers from such communities should be expected to show more stable employment patterns, less variation in earnings and perhaps less mobility than workers from natural-resource based communities.

But size is also important. Many natural-resources based communities are small and isolated, adding to their vulnerability when the dominant industry turns down. Larger communities tend to have larger services sectors. This was noted in a recent Economic Council Report (1990), which observed that financial, business, transportation and communication services tended to locate in larger centres such as Halifax. Such firms need to have access to a number of features found in larger centres, such as highly skilled labour, head offices, financial institutions and services other than their own, and a larger market. These industries are highly dependent upon access to information and face-to-face contact, which is lost in a small

community isolated from the market. Service firms, unlike goods-producing firms, generally service their clients face to face, and do not "ship" their output nearly as often (although some do).

There is then, an interaction between size and industrial structure. Larger communities often tend to develop relatively larger service sectors. Since employment growth in general has been in the services sector, this tends to favour middle size and larger communities. Regional disparities may be increasing for this reason. Smaller communities are more likely to be single-industry dependent and have a more difficult time attracting jobs in the business service and distributive services sectors in particular. Workers laid off from a plant in a small natural-resource based town would have less opportunity for employment in such a small concentrated labour marker, and there is an increased likelihood that they will have to move to find other employment. They may also have longer breaks in earnings, bringing down their overall income over some period of time. In middle size and large communities, laid off workers may have more opportunities in other industrial sectors, and may not have to resort to geographic mobility.

The objective of this paper is to use a new experimental data source being developed in Statistics Canada to address a number of questions related to the issues described above. They are:

(1) How heterogeneous - in terms of industrial structure - are communities in Atlantic Canada, and in particular, what differentiates small from large communities?

(2) Did the resource-based communities become more diversified in terms of industrial structure over the 1981-86 period?

(3) In general, did workers from small communities face more difficult labour market conditions over the early 1980s than workers from large communities? (ie how important is community size in determining the manner in which workers adjust).

(4) Did the labour market experiences of workers in small natural-resource based towns differ significantly from those of workers in other small communities? and finally

(5) Four specific communities of different size, industrial structure and economic history are selected to determine how their workers fared compared to workers in general in Atlantic Canada over the same period. The four communities are Corner Brook, Newfoundland; Labrador City, Newfoundland; Summerside, PEI; and Halifax, Nova Scotia.

**Methodology**

Following is a very brief outline of the methodology employed. More detail is given in the appendix, and in a paper describing the way in which the data base is constructed (Heath, 1990).

Geographical information on both the workers (postal codes from Revenue Canada files) and the firms for which the workers are employed (postal codes for firms from Statistics Canada's business register) is used to allocate workers to a particular community. The geographical location refers to the place of employment of the worker, not necessarily the place of residence. Information on annual income, unemployment insurance benefits received, age, sex, and industry of employment of the workers in any given year come from Revenue Canada and business register data files. This information is available for workers for each year, and hence a longitudinal micro-data source is created (ie. information on the same worker over time) for the 1981-86 period. In most cases, information is used only for the end points of this period.

The industrial distribution of the payroll in a particular community is determined simply by adding the annual payroll of all workers employed in that community (not necessarily resident there) during any given year (eg. 1981 and 1986). Payroll is a good indicator of the industrial structure of a community because it is a measure of what a particular industry contributes to the community through the pay cheque. All communities in Atlantic Canada are classified according to three levels of size - small (700 to 5,000 workers), medium (5,000 to 20,000 workers) and large (more than 20,000 workers) and four types of industrial structure - natural-resource based, public service based, diversified and other. Quantiles are used to allocate the towns to types of industrial structure, within each size class, the one-fourth of all towns which have the highest

share of payroll in the natural-resources sector are said to be natural resource based communities. Similarly, one-quarter are allocated to the public services sector, and the one-quarter most diversified (as measured by the Herfindahl index based on industrial distribution of payroll) are called diversified communities. The remaining one-quarter are left in the "other" category. The change in industrial structure (ie industrial distribution of payroll) is measured for communities over the 1981-86 period.

Four indicators of labour market conditions for workers are developed and used. These are:

(1) change in annual employment earnings,

(2) the proportion of workers with earnings in 1981 but not 1986,

(3) the unemployment insurance benefits received by the workers (as a proxy for unemployment) and,

(4) the proportion of workers migrating.

These measures are described in more detail later.

The major interest in this paper is how the labour market conditions changed for workers with a strong labour market attachment. There is a very large volume of workers with low ($1,000 to $5,000) annual earnings which result from partial attachment to the labour force. Hence, the four labour market indicators outlined above were calculated only for workers with labour market earnings of more than $6,600 in 1981. This is the annual earnings of someone working full-time in a job paying the minimum wage in 1981. The industrial payroll in the communities, however, was calculated using the earnings of all workers employed in that community.

## The Findings

### The Industrial Structure of Small and Large Towns

The industrial structure of small communities differs from that of large communities in two ways. First, small towns are more dependent on natural resources[3] than their larger counterparts. And second, large communities develop distributive services (transportation, communications, whole trade) and business services (financial services, consulting, etc.) sectors which smaller communities do not have to the same degree. In 1986, over one quarter (26.3%) of the payroll in larger communities came from these industries, compared to only 11.6% in small communities (chart 2 and table 1). This has implications for workers. Both because of cyclical downturns such as the early 1980s and as a result of longer term structural changes which have been occurring in the economy, it is in the natural resource and other goods-producing sectors that the share of jobs has been declining. This is observed in the data for the 1981-86 period. The natural resource sectors share of total payroll in Atlantic Canada fell from 13.7% in 1981 to 11.2% in 1986. This naturally affected the resource-dependent communities, and in particular the small communities where the dependence on natural resources is greater.

Overall, small communities in Atlantic Canada lost ground over the early 1980s. This was due in large part to the decline in the natural resources sector over this period. The value (in constant dollars) of payroll in the natural resource sector in small communities fell by 16% over the 1981-86 period although there was some continued recovery in employment in that sector in 1987 and 1988 (Figure 1). Nonetheless, as a result of this very large decline in natural-resource payroll in these small towns, they became more concentrated in their industrial structure in the public sector (see chart 2). The proportion of payroll in the public sector increased slightly from 35% to 39%, and the Herfindal index of concentration[4] increased from .227 to .240 over the 1981-86 period, indicating increased concentration. Thus, small communities in general lost ground, largely because of the downturn in natural resources, and as a result their payroll became relatively more concentrated in the public services sector.

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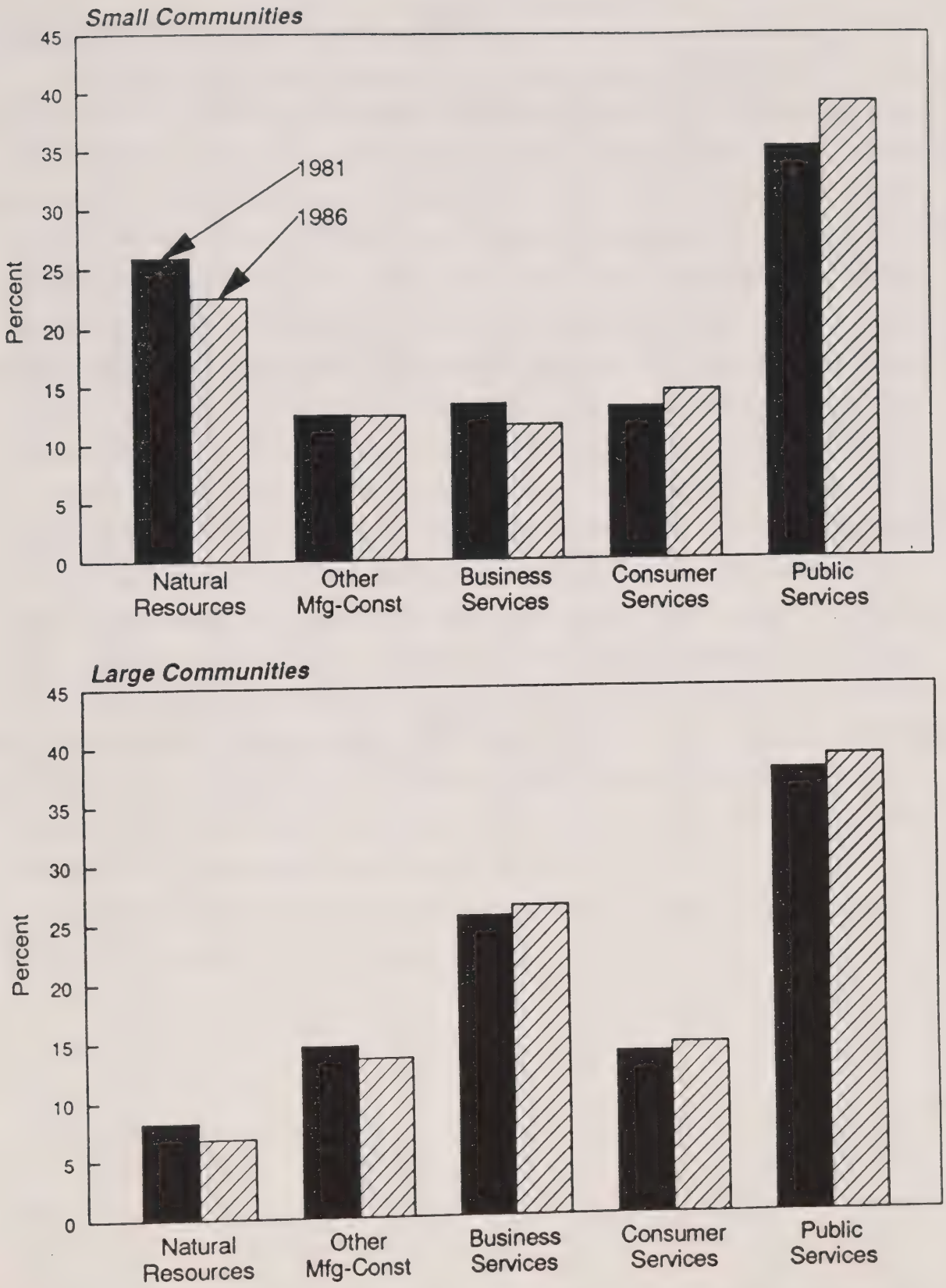
[3] Natural resources here includes both primary industries, plus manufacturing industries which are natural resource based, including pulp and paper, wood, fish processing, utilities and petroleum and coal industries.

[4] Simply the sum across all industries of the square of the payroll share (or proportion) in each industry.

# Distribution of Payroll by Industry, 1981 & 1986



## TABLE 1: INDUSTRIAL DISTRIBUTION OF PAYROLL BY COMMUNITY TYPE, ATLANTIC COMMUNITIES, 1981 and 1986

### 1981

| Community - Type | | Industry: natural resources | other manufac-turing | distri-butive services | consumer services | business services | public services | construc-tion | total | no. communi-ties | no. workers >$6,600 (thous.) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | % | % | % | % | % | % | % | % | | |
| Natural-Resource Based | Small | 61.3 | 3.1 | 3.8 | 9.0 | 2.1 | 17.9 | 2.8 | 100.0 | 27 | 18.2 |
| | Medium | 40.3 | 3.5 | 9.2 | 18.8 | 3.5 | 20.8 | 3.9 | 100.0 | 5 | 38.1 |
| | Large | 29.0 | 3.3 | 10.5 | 13.8 | 5.9 | 32.5 | 5.1 | 100.0 | 1 | 30.6 |
| | Total | 40.9 | 3.3 | 8.5 | 15.1 | 4.0 | 24.0 | 4.1 | 100.0 | 33 | 86.9 |
| Public Service Based | Small | 9.8 | 7.1 | 8.4 | 11.4 | 3.3 | 55.6 | 4.3 | 100.0 | 27 | 24.4 |
| | Medium | 6.4 | 4.6 | 6.6 | 13.7 | 3.9 | 59.6 | 5.1 | 100.0 | 5 | 21.9 |
| | Large | 7.1 | 5.0 | 8.9 | 15.9 | 8.7 | 49.6 | 4.9 | 100.0 | 1 | 22.1 |
| | Total | 7.8 | 5.6 | 8.0 | 13.6 | 5.3 | 54.8 | 4.8 | 100.0 | 33 | 68.4 |
| Other | Small | 16.7 | 7.7 | 17.0 | 17.5 | 2.7 | 31.6 | 6.7 | 100.0 | 27 | 16.5 |
| | Medium | 8.7 | 8.1 | 23.3 | 13.8 | 5.4 | 36.6 | 4.2 | 100.0 | 5 | 25.6 |
| | Large | 5.0 | 7.3 | 14.8 | 13.8 | 10.6 | 43.4 | 5.1 | 100.0 | 4 | 167.1 |
| | Total | 6.2 | 7.4 | 16.0 | 14.1 | 9.4 | 41.7 | 5.1 | 100.0 | 34 | 209.3 |
| Diversified | Small | 21.2 | 11.2 | 11.5 | 14.7 | 4.7 | 31.1 | 5.5 | 100.0 | 27 | 27.7 |
| | Medium | 13.2 | 15.3 | 14.5 | 15.5 | 5.5 | 30.7 | 5.2 | 100.0 | 6 | 34.5 |
| | Large | 8.0 | 14.5 | 20.7 | 13.5 | 9.3 | 27.6 | 6.4 | 100.0 | 2 | 104.7 |
| | Total | 11.2 | 14.2 | 18.0 | 14.1 | 7.8 | 28.8 | 6.0 | 100.0 | 37 | 166.9 |
| Total | | | | | | | | | | | |
| | Small | 25.9 | 7.7 | 10.0 | 13.1 | 3.4 | 35.2 | 4.8 | 100.0 | 108 | 86.8 |
| | Medium | 20.4 | 7.9 | 13.1 | 16.0 | 4.5 | 33.5 | 4.5 | 100.0 | 21 | 120.2 |
| | Large | 8.2 | 9.1 | 15.9 | 13.8 | 9.6 | 37.8 | 5.5 | 100.0 | 8 | 324.5 |
| | Total | 13.7 | 8.6 | 14.4 | 14.2 | 7.5 | 36.4 | 5.2 | 100.0 | 137 | 531.6 |

### 1986

| Community - Type | | % | % | % | % | % | % | % | % | % |
|---|---|---|---|---|---|---|---|---|---|---|
| Natural-Resource Based | Small | 54.9 | 2.7 | 3.3 | 10.5 | 1.9 | 23.7 | 3.0 | 100.0 | 27 |
| | Medium | 32.2 | 4.3 | 7.3 | 12.4 | 4.4 | 34.1 | 5.4 | 100.0 | 5 |
| | Large | 20.0 | 3.4 | 14.4 | 15.5 | 5.0 | 36.0 | 5.7 | 100.0 | 1 |
| | Total | 32.4 | 3.6 | 9.0 | 13.1 | 4.1 | 32.8 | 5.0 | 100.0 | 33 |
| Public Service Based | Small | 8.0 | 6.8 | 8.2 | 14.2 | 2.9 | 54.3 | 5.6 | 100.0 | 27 |
| | Medium | 6.2 | 4.9 | 6.6 | 13.5 | 4.1 | 61.0 | 3.7 | 100.0 | 5 |
| | Large | 7.1 | 5.5 | 8.0 | 14.3 | 5.8 | 48.8 | 4.8 | 100.0 | 1 |
| | Total | 7.1 | 5.5 | 8.0 | 14.3 | 5.8 | 54.5 | 4.8 | 100.0 | 33 |
| Other | Small | 16.1 | 10.1 | 12.2 | 15.2 | 2.9 | 38.5 | 5.0 | 100.0 | 27 |
| | Medium | 7.5 | 8.6 | 11.6 | 16.2 | 5.6 | 46.6 | 4.0 | 100.0 | 5 |
| | Large | 4.9 | 6.7 | 14.8 | 14.4 | 12.0 | 41.8 | 5.5 | 100.0 | |
| | Total | 5.9 | 7.2 | 14.2 | 14.6 | 10.7 | 42.1 | 5.3 | 100.0 | 34 |
| Diversified | Small | 18.6 | 10.3 | 9.1 | 16.7 | 4.5 | 36.2 | 4.7 | 100.0 | 27 |
| | Medium | 12.6 | 15.7 | 11.1 | 15.8 | 6.0 | 34.8 | 4.1 | 100.0 | 6 |
| | Large | 9.7 | 12.7 | 16.5 | 15.0 | 7.6 | 33.6 | 4.9 | 100.0 | |
| | Total | 11.2 | 14.2 | 18.0 | 14.1 | 7.8 | 28.8 | 6.0 | 100.0 | 37 |
| Total | | | | | | | | | | |
| | Small | 22.5 | 7.7 | 8.3 | 14.5 | 3.3 | 39.1 | 4.7 | 100.0 | 108 |
| | Medium | 16.6 | 8.6 | 9.1 | 14.4 | 5.1 | 41.9 | 4.4 | 100.0 | 21 |
| | Large | 6.8 | 8.1 | 16.0 | 14.5 | 10.3 | 39.0 | 5.4 | 100.0 | 8 |
| | Total | 11.2 | 8.1 | 13.4 | 14.5 | 8.1 | 39.6 | 5.1 | 100.0 | 137 |

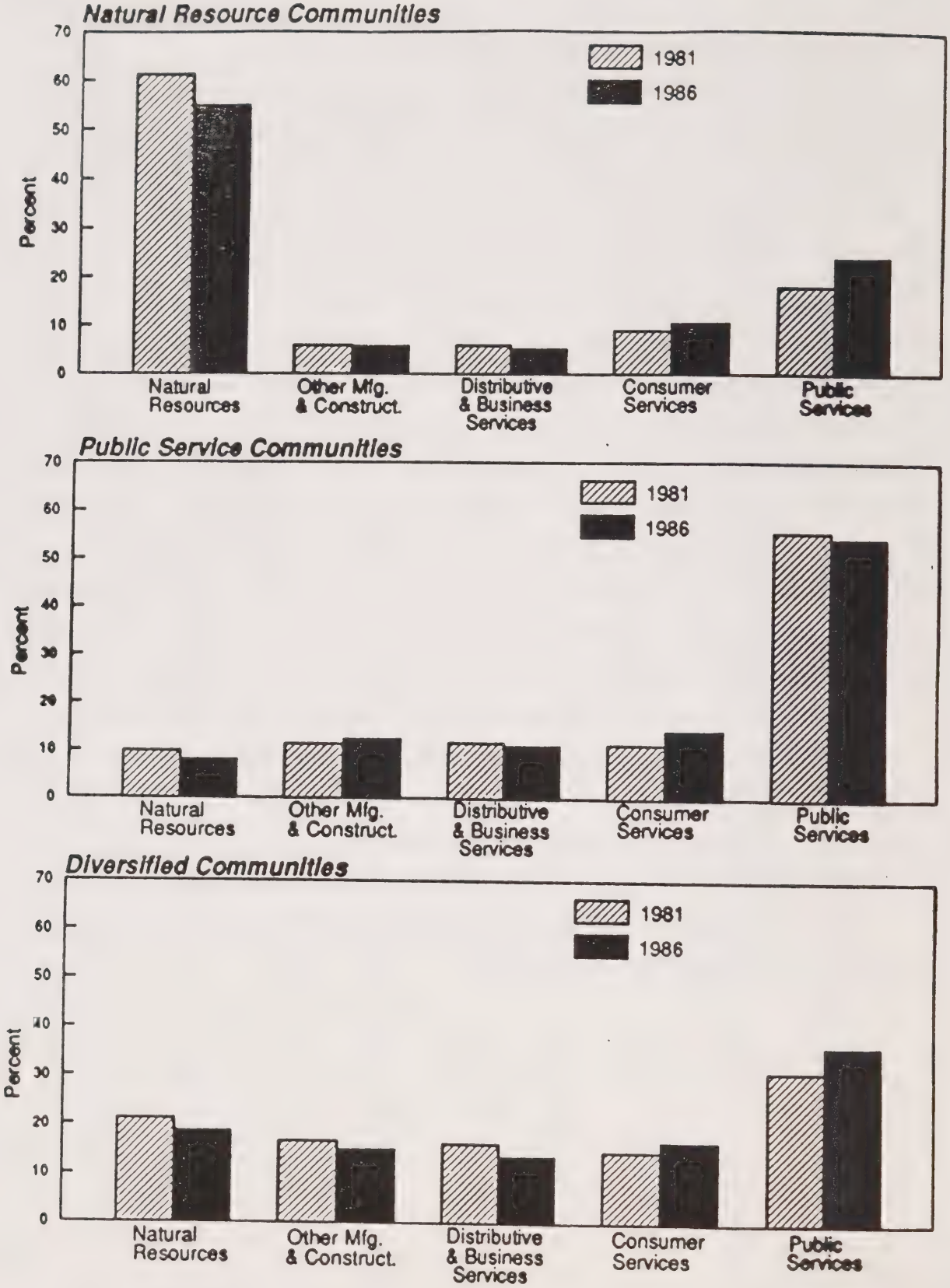
* Including primary industries plus resource - other manufacturing (wood, pulp & paper, fish processing, utilities)

**The Heterogenous Nature of Small Communities**

Small Atlantic Communities are not a homogeneous group; their industrial structure varies dramatically (chart 3). An equal number of the 108 small communities were allocated to each of four categories: natural resource based, public sector based, diversified and other. The one-quarter of the small towns which are most dependent on natural resources had fully 61% of their payroll in that sector in 1981. But there are on equal number of small communities with an equally high degree of dependence on the public sector (health, education and government). These 27 communities had, on average, 56% of their payroll from that sector. Similarly, the one-quarter most diversified communities have a relatively flat distribution of payroll across industrial structure. This clearly has implication for the stability of the local economy and labour market conditions for workers. But the focus of this paper is on small resource-based communities. Like small towns in general, they lost substantial ground over this period. Their share of total payroll in Atlantic Canada (as a proxy for employment) fell from 3.4% in 1981 to 2.9% in 1986. This was largely due to the decline in natural resources, as the value (in constant dollars) of payroll in that industrial sector fell by fully 20% over the period in small resource-based towns. This decline made it look as if these communities became more diversified, as the dependence in natural resources seemed to decline and the Herfindal index of concentration fell from .420 to .372. But there was little expansion of other industrial sectors in these communities. The total payroll (in constant dollars) fell in all industries except for the public services, where it rose at 3% a year. Thus, diversification came about mainly as a result of the decline in the major industrial sector, not because of growth in other sectors.

With this background on the industrial structure of these communities, the labour market experiences of workers in now considered.

# Distribution of Payroll, Small Community Types, 1981 & 1986



**Labour Market Experiences of Workers from Different Types of Communities**

The interest in the vulnerability of the economies of small resource-based towns comes in part from the effect that this vulnerability has on labour market conditions; earnings and unemployment. This section addresses that effect directly by using longitudinal data on workers over the 1981-86 period. The concern here is with workers who had a strong labour force attachment in 1981. Many workers earn only a few thousand dollars during year due to their weak attachment to the labour force. The were excluded. Only persons earning more than $6,600 in 1981 are included in the analysis (approximately that earned by a person working full-year at minimum wage).

Four labour market indicators are used to assess any groups of workers labour market experiences. They are:

(1) change in annual employment earnings for workers who have earnings in both 1981 and 1986. This change can result from a change in hours worked or wages paid, but it is a good measure of the overall earnings the labour market generated during the year.

(2) the proportion of workers with earnings in 1981 but no earnings in 1986. Having no employment earnings reported in 1986 can be due to retirement, emigration from Canada, death, or having no job. The proportion of workers with no earnings in the 25-44 age group rather than among all workers with no earnings in 1986 is used as an indicator to overcome the retirement problem. The proportion of workers in the 25-44 age group dying or emigrating from Canada's is quite small.

(3) the unemployment insurance benefits received by the workers in any group during a given year as a proportion of all employment earnings for that group during the year. This is used as an indicator of unemployment.

(4) the proportion of workers[5] (in any group) who were in the same community in both 1981 and 1986. This is a measure of the geographical mobility of the particular group of workers.

There are four major observations using these indicators.

A. **Workers from small communities generally faced less favourable labour markets than workers in large communities and out-migration is generally higher from small communities.**

Table 2 shows that workers from small communities saw their earnings decline by 2.6% on average between 1981 and 1986 (in real dollars), while those in large communities had average increases of +2.7%. Of course, information on the change in cost of living would be needed to completely assess these difference, but while the cost of living may be lower in small towns, it is the change in the cost of hiring that is important here.

Much of this difference may be an industry effect, since the natural resource sector is more significant in smaller communities. To test this, regression analysis was conducted where broad industry sector, age and sex composition of the worker population, earnings in 1981, and industrial and geographic mobility were controlled for[6]. The results suggested there was still a significant difference in the rate of change of earnings for workers from small and large communities over this period.

These findings are supported by the UI benefits results. Unemployment insurance benefits were 5.8% of total employment earnings among workers from small towns, compared with 2.9% among those from large, suggesting more unemployment among the former population. Geographic mobility declined as size of community increased; 70% of workers in small towns were still there in 1986, compared to 80% of workers in medium size towns, and 90% of workers

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[5] For workers who had earnings in both years, since if no tax form is filed, the place of residence cannot be established.

[6] The ln $(\frac{\text{earning 86}}{\text{earning 81}})$ was the dependent variable. The log of Earnings in 1981 were included as a dependent variable because workers with low earnings tend to have more rapid increases than those with high earnings.

from large communities. This is not surprising, since the broader range of job opportunities in a large city means that when a worker wants to or is forced to change jobs, he/she is much more likely to be able to remain in a large centre to do so than in a small community.

**B. Among different types of small communities, workers from natural-resource based towns encountered the most difficult labour market, but this did not result in higher out-migration rates in those towns.**

As mentioned earlier, small communities are a very heterogeneous group regarding industrial structure, and hence the labour market outcomes of their workers is also likely to vary considerably. The labour market experiences of workers from the three community types defined earlier (natural-resource based, diversified and public service based) were of interest. Over this period, the more prevalent the public service sector in the community, the better the labour market for the workers - the more prevalent the natural resources sector, the worse the labour market.

Average earnings declined almost 5% among workers from small natural-resource based towns, while not changing at all among workers in small public service communities. UI benefits usage supports the differential (benefits were 8.1% of earnings compared to 4.4% in the two types of towns) as did the proportion of workers with earnings in 1981 but none in 1986 (8.7% compared to 5.7%). But in spite of these differences, the proportion remaining in the community was if anything, highest in the small natural resource based terms[7](Table 2). More will be said of this later.

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[7] The very low rate in the public service based communities is likely related to the high degree of mobility among armed-forces personnel.

TABLE 2: OUTCOME ON THE FOUR INDICATORS FOR WORKERS FROM COMMUNITIES OF DIFFERENT SIZES, 1981-86

| | SMALL | MEDIUM | LARGE |
|---|---|---|---|
| Average % Change in Earnings (those earnings in both years) | -2.6% | -0.6% | +2.7% |
| UI Benefits received (as % of earnings over all 6 years for all workers) | 5.8% | 4.1% | 2.9% |
| % with No Earnings in '86 (25-44 years olds) | 6.9% | 6.2% | 7.5% |
| % of Workers Remaining in Community* | 70% | 80% | 90% |

**OUTCOMES FOR WORKERS FROM DIFFERENT TYPES OF SMALL COMMUNITIES: 1981-86**

| | NATURAL RESOURCE BASED | DIVERSIFIED | PUBLIC SERVICE BASED |
|---|---|---|---|
| Average % Change in earnings (earnings in both years) | -4.9% | -2.4% | -0.2% |
| UI Usage (as % of earnings over 6 years) | 8.1% | 5.3% | 4.4% |
| % with no earnings in 86 (25 - 44 pop) | 8.7% | 6.7% | 5.7% |
| % of Workers remaining in community* | 74% | 70% | 65% |

**OUTCOME FOR WORKERS IN SMALL NATURAL-RESOURCE BASE COMMUNITIES, BY INDUSTRIAL SECTOR OF EMPLOYMENT, 1981-86**

| | GOODS PRODUCING | COMMERCIAL SERVICE | PUBLIC SERVICE |
|---|---|---|---|
| Ave % change in earnings | -7.1% | -3.9% | +1.8% |
| UI Usage | 10.2% | 6.5% | 2.7% |
| % with No Earnings in '86 (25-44) | 8.4% | 8.0% | 4.4% |

Note: For workers earning more than $6,600 in 1981. The community size refers to the community in which the workers worked in 1981.

* % of workers with earnings in both 1981 and 1986, since in order to know place of residence it is necessary for the worker to have employment earnings

C. **Within small-natural resource based communities workers in the goods-producing industry encountered a much more difficult labour market than those in the commercial or public services.**

Another issue of interest is whether, when a small community is adversely affected, all workers are affected equally. One might argue that as the major industry turns downs there is a sort of negative multiplier effect. As the purchasing power of workers in the effected sector decreases, this influences jobs in other sectors of the community.

While this is likely the case, these indicators suggest that there is a very significant difference in the impact on the earnings and unemployment on the various workers. Those in the goods sector saw their earnings fall in average 7%, while those in the public services in the same small natural resource based towns had an average increase of almost 2% in earnings. The earnings and employment of the service sector workers are not as dependent on immediate market conditions as workers in the private sector. The UI usage supports this, as it was 10% (as % of earnings) among goods workers and only 2.7% public sector workers, indicating much more unemployment in these small resource-based towns among the goods workers. The labour market conditions for commercial service sector workers were between those for the goods and public sector workers; basically the weaker the economic link to the goods sector, the better the workers in these towns did in terms of earnings gain and employment.

In spite of this difference in labour market conditions, it is still observed that the goods sector workers were no more likely to move than other workers. The percent of workers (with earnings both years) remaining in the community was highest among the goods workers.

While no attempt was made in this exploratory study to determine why this was the case, it could possibly be related to a very large number of factors including:

1. Educational attainment of workers and job opportunities.

The workers in the goods sector in the small communities often have relatively low levels

of educational attainment, making it difficult for them to locate work elsewhere. As a result, job opportunities may be very limited in other communities.

2. Potentially large financial losses when selling fixed assets.

   A decline in the value of large fixed assets, particularly a house, would discourage many from selling and moving.

3. Social and family ties.

   Many workers may have lived in the communities for a considerable period of time, and social and family ties may be very strong.

4. A spouse holding employment.

   As more and more families become dual income families, the loss of the job among one spouse does not necessarily imply zero employment earnings for the family. The cushion of the second income may retard migration.

5. Workers expectation regarding recovery.

   In boom and bust communities workers likely witness downturns and recoveries a number of times over their working lives. The expectation that conditions will improve (in some cases a false expectation) may discourage workers from moving to other communities, particularly when the upturn would provide a high-wage job relative to what the worker might earn in other communities or industries.

6. Effect of unemployment insurance and other transfer payments.

   Unemployment insurance benefits may discourage worker mobility, especially when this is combined with the items listed here.

7. The relative importance of migration <u>to</u> other jobs versus migration away <u>from</u> unemployment.

   In many communities, "pull" migration is much more important then "push" migration. In the public service communities in particular, a great portion of the migration may be people leaving jobs to move to better jobs or because of <u>transfers</u>. This may be a significant portion of migration in some communities. In natural-resource communities, this type of migration may be much lower. Thus, the aggregate out-migration rate in a

resource-based town may be lower than that observed in, say, public sector towns, even if the "push" out-migration (leaving because of unemployment) were higher.

Some or all of these factors may help explain the out-migration rates observed in this work. However, it is beyond the scope of this exploratory work to attempt to determine the relative importance of each.

**The Labour Market Experiences of Workers from Four Specific Communities**

Having portrayed some baseline information, we now focus on four specific communities. Knowledge of general trends in different types of communities is very necessary to place findings for a specific community within a context, or to make general statements about the effect of structural change on different types of communities. However, the real advantage of our data base is its ability to look at specific communities and types of workers within these communities. Three medium sized and one large community as selected to demonstrate this aspect of the data base. These communities were selected in large part to allow the validation of this experimental datasource to proceed. Data from both the census and the experimental source were readily available for these communities. In future work other communities could be selected. The communities selected are:

1. CornerBrook, Newfoundland

   This town of around 30,000 was growing at about 1%/year over the 81-86 period. The pulp and paper and the forestry industry were important in the community, and during the early 1980s there was substantial unemployment as a very large mill made major renovations, which resulted in productivity gains and the displacement of a number of workers. In fact, this community is quite diversified (Table 6). Although the natural resources sector is relatively large, the distributive services sector (transportation, communications, wholesale trade) is also above average in size. Nonetheless, there was substantial unemployment in this area over the early 1980s.

2. Labrador City, Newfoundland

This city of around 13,000 is a classical single industry town, being almost totally dependent upon the iron ore mining industry. During the 1960s and 70s this was a major centre, but as the U.S. steel industry turned down in the 1980s, the mining industry here and in nearby communities had major closures. The community shrank at a rate of about 4.4% a year over the 81-86 period. The average earnings of workers in this community were extremely high, at $34,300 in 1981, compared to $20,000 to $25,000 in most other communities.

3. Summerside, P.E.I.

Largely dependent on the public services sector (including defence), this community of about 13, 000 grew about 1% per year over the 1981-86 period. The industrial base of this town was radically different from the first two.

4. Halifax, Nova Scotia

Chosen as a reference point, this large centre (255,000 in 1981) grew at 1.3%/year over the period. While quite diversified, this city is also highly dependent on the public services sector (defence, provincial government, university, health, etc.) (43% of payroll comes from that sector) (Table 3). It also has an above average size business services sector and distributive services sector. It has a relatively small natural resource sector.

**TABLE 3: Industrial Distribution of Payroll in Four Atlantic Communities, 1981 & 1986**

| | CornerBrook Newfoundland | | Labrador City Newfoundland | | Summerside P.E.I. | | Halifax Nova Scotia | |
|---|---|---|---|---|---|---|---|---|
| Population '81 | 29,400 | | 13,000 | | 13,600 | | 255,00 | |
| Growth, 1986 to 1986 | +1%/year | | -4.4%/year | | +0.7%/year | | +1.3%/year | |
| Industrial Distribution of Payroll | '81 | '86 | '81 | '86 | '81 | '86 | '81 | '86 |
| Natural Resource | 25 | 20 | 70 | 61 | 4 | 4 | 5 | 4 |
| Other Manufactu. | 4 | 7 | 2 | 2 | 6 | 8 | 8 | 7 |
| Construction | 6 | 4 | 2 | 4 | 6 | 5 | 5 | 6 |
| Distributive Services | 26 | 12 | 6 | 6 | 9 | 9 | 14 | 14 |
| Construction Services | 25 | 15 | 7 | 9 | 17 | 17 | 14 | 14 |
| Business Services | 5 | 6 | 2 | 2 | 5 | 6 | 11 | 11 |
| Public Services | 29 | 36 | 12 | 16 | 52 | 52 | 44 | 42 |
| Average Earnings of Workers with Strong L.F. Attachment* | $24,100 | | $34,300 | | $21,300 | | $24,800 | |

* ie earning more than $6,600 in 1981

**Findings**

The labour market indicators are shown in table 4 for the workers in these communities, as well as for all workers in Atlantic Canada (as a point of comparison). The results are displayed separately for workers who remained in the community over the period, and for those who moved within Atlantic Canada. The major observations are:

1. Workers remaining in CornerBrook over the period experienced more difficult labour market conditions than those from other communities, notably compared to those in Halifax, or workers in general in the region. CornerBrook workers who stayed in community saw their earnings fall by almost 5% on average (compared to +1.5% for all workers in the region) and their UI benefits were 4.7% of earnings, compared to 3.1% for all workers and 1.7% for Halifax workers remaining in the community. Furthermore, this average 5% loss in earnings masks the fact that 53% of workers remaining in CornerBrook saw their earning fell by an average 27% in real terms over the period
2. Workers who left Labrador City - likely due to job loss in that single industry community - generally did not encounter very favourable labour market conditions compared to other workers. The vast majority of them (77%) took pay cuts, and among all workers the annual earnings decreased by an average 35%. (The 77% taking pay cuts saw their annual earnings fell 50% in real terms). This left the workers with average pay which was below that for other workers (at $19,300 compared to $21,700), although their 1981 earnings had been well above that of other workers. And UI benefits among this population (averaged over all six years) was 11% of earnings, compared to 6.8% for all workers who moved in Atlantic Canada. Thus, the 25% of workers leaving this classical single-industry community and moving within Atlantic Canada did not face favourable labour market conditions. Workers who managed to continue working in Labrador City did quite well, even though their earnings declined on average.

**TABLE 4: LABOUR MARKET CONDITIONS FOR WORKERS FROM FOUR COMMUNITIES OVER THE 1981-86 PERIOD**

| | CornerBrook | Labrador City | Summerside | Halifax | All Workers in Atlantic Canada |
|---|---|---|---|---|---|
| # Workers (thousands) (>$6,600 in '81) | 9.5 | 6.2 | 5.2 | 112.8 | 531.6 |
| Ave. Earnings in '81 | $24,100 | $34,700 | $21,400 | $25,200 | $23,600 |
| % with no earnings in 1986 (24-44 pop) | 5.6% | 6.3% | 5.1% | 7.9% | 7.1% |
| Change in Earnings ('81-'86) | -3.8% | -17.2% | +3.7% | +6.5% | +1.2% |
| UI Benefits as % of Earnings (over all six years) | 5.6% | 4.9% | 3.8% | 2.4% | 3.6% |
| **Workers Remaining in Community** | | | | | |
| % of all workers remaining | 83.0% | 58.0% | 64.0% | 82.0% | 78.0% |
| Change in Earnings ('81-'86) | -4.9% | -11.9% | +1.5% | +6.7% | +1.5% |
| Average Earnings in '86 | $23,100 | $33,300 | $20,600 | $25,900 | $24,400 |
| UI Benefits as % of Earnings (over all six years) | 4.7% | 2.3% | 3.2% | 1.7% | 3.1% |
| **Workers Moving in Atlantic Canada** | | | | | |
| % of all workers moving within Atlantic Canada | 11.0% | 25.0% | 21.0% | 8.0% | 14.0% |
| Change in Earnings | -3.1% | -35.0% | 0.5% | 3.9% | -5.3% |
| Average Earnings in '86 | $22,200 | $19,300 | $22,200 | $22,200 | $21,700 |
| UI Benefits as % of Earnings | 7.0% | 11.0% | 5.2% | 4.9% | 6.8% |

* percent of workers with earnings in both 1981 and 86, since without employment earnings their geographic location is not known

3. Workers from the mainly public sector community of Summerside , and the larger diversified city of Halifax in general experienced less difficulty. Earnings among Summerside workers rose 3.7%, and among Halifax workers 6.5%, compared to +1.2% for workers in general in Atlantic Canada. They also experienced relatively little unemployment (as indicted by UI benefits received).

   Not surprisingly, workers in different communities encountered different labour market conditions over the 1981-86 period.

**The Large Variance in Change in Annual Earnings**

The average change in earnings for a group of workers masks a tremendous variability in the experiences of individual workers. There is surprisingly large variation in the annual earnings of individual workers, even among prime aged males.

For workers as a whole in the population selected for Atlantic Canada, average earnings rose 1.3% (for workers earning more than $6,600 in 1981 and with earnings in both years). But this masks the fact that the 61% of workers who gained real earnings saw their earnings rise by 27% on average, and the 39% whose earnings fell experienced an average one-third loss in earnings.

Some of this decline could have been related to retirement, females dropping out of the labour force to raise children, or for other reasons. However, even when the earnings variability of prime-aged males are considered, the result is much the same.

For males 25-44, the gainers and losers in real income for the four Atlantic Communities and all Atlantic Canada (earning >$6,600) is shown in table 5. While the average earnings change was 3.2% among these workers in Atlantic Canada, note that 60% of them experienced a gain of 24%, while 40% lost 28% in real earnings. There is a tremendous amount of variance in earnings change, and the average masks substantial of variation.

**TABLE 5: VOLATILITY OF EARNINGS; MALES 25-44**

| | CornerBrook | Labrador City | Summerside | Halifax | All Workers in Atlantic Canada |
|---|---|---|---|---|---|
| Average Earnings in 1981 | $27,800 | $39,000 | $24,600 | $29,400 | $27,800 |
| Average % Change in Earnings '81-86 (earnings in both years) | -6.1% | -18.9% | +2.8% | +3.8% | +3.2% |
| **GAINERS** | | | | | |
| % with Earnings Gain | 47.0% | 25.0% | 70.0% | 69.0% | 60% |
| Average Gain | +26.0% | +20.0% | +20.0% | +27.0% | +24% |
| **LOSERS** | | | | | |
| % with Earnings Loss | 53.0% | 75.0% | 30.0% | 31.0% | 40% |
| Average Loss | -26.0% | -25.0% | -30.0% | -27.0% | -28% |

## Summary

The natural resource sector in Atlantic Canada declined during the recession of the early 1980s, and by 1986 had not recovered to it pre-recession level. Communities based on natural resource industries tend to be smaller on average and they appeared to become more diversified in the 1981 to 1986 period, but this due to a decline in natural resource employment, not due to an expansion in the other sectors.

The labour market experiences of individual workers differs by size of community and by the industry mix of employment in the community. Workers in smaller communities experienced a decline in real earnings whereas workers in larger towns experienced an increase in real earnings. Among the smaller communities, the real earningsof workers declined the most in natural resource communities.

Workers in smaller communities were more likely to move compared to workers in larger communities. However, among the smaller communities, mobility in the natural resource based communities was the lowest.

Within smaller natural resource communities, the workers in the goods-producing sector reported a decline in real earnings whereas the workers in the commercial or public service sectors experienced an increase in real earnings. However, the workers in the goods-producing sector still reported a lower rate of mobility out of the community.

The average change in earnings for a group of workers masks a tremendous variability in the experiences of individual workers. For example, the average Atlantic Canada worker with earnings of more than $6,600 in 1981 and with some earnings in 1986 experienced an increase in earnings of 1.3%. This masks the fact that 61% of the workers experienced a gain in real earnings that averaged 27% and 39% of the workers experienced a decline in real earnings that averaged -33%.

Like any study with a focus on a particular period, these findings are determined by the economic events of the period. The 1981 to 1986 period was chosen because 1981 preceded the recession and the recovery was underway by 1986. Also, it was helpful to compare the data from this experimental data source with Census of Population for the two periods. This database facilitates cross-section (ie. one point in time) and annual longitudinal analysis of workers and firms at the municipal level. Development of the data base is continuing.

## Appendix A

### The Classification of the Communities

One of the strengths of this data source is its wide coverage, it covers virtually all workers and communities. To take advantage of the wide coverage of this data source, it was decided to include all communities in Atlantic Canada which had more then 700 workers in the analysis.

One hundred and thirty-seven communities are included. For communities above roughly 10,000 population, geographical boundaries of the municipalities were determined based on Statistics Canada's postal code conversion file, which converts postal codes to municipal areas for Census Areas (CA's, which typically have a population between 10,000 and 100,000) and census metropolitan areas (CMA's with population over 100,000). Commuters living outside the municipality in the surrounding rural postal code areas but working in the community were included int the municipality counts (see Heath, 1989). For communities under approximately 10,000 in population, the rural postal code area in which the town is located is used. Hence, the geographical unit of observation for the small communities is not necessarily the municipal boundaries, but rather the rural postal code area to which the community belongs. There can be fairly large areas which encompass more than the community itself, but usually with very sparse population outside the smaller community.

The communities were classified by size and industrial structure as of 1981. This year was selected so that the type of community in which workers resided at the beginning of the period would be known. Three size classes were used, 700-4999 workers in 1981, 5000-19999 and 20,000 workers plus. This roughly converts to groups based on population of 1200 to 8500, 8500 to 35,000, and over 35,000. Industrial structure was measured by the distribution of the towns total payroll across a seven industry classification. Payroll is a better measure than employment because of the wide variation among industries in hours worked (share of part-time employment). It is useful as well because the amount of money an industry contributes to the local economy through the pay cheque is of interest to communities. It must be remembered, however, that the distribution of payroll may differ significantly from the distribution of employment, particularly for sectors which have above average wage rates (e.g., public service) or hours of work which differ significantly from the average (e.g., consumer services). For the

purposes of this classification, primary industries (excluding agriculture, which was dropped form the study) were combined with natural resource based manufacturing industries to form the natural resource sector. Any economic event which affected the primary sector would also directly affect the processing industries directly dependent on the natural resources.

There was not an attempt in this work to classify single-industry communities. That requires some sense of an absolute measure of dependence on an industry, and it is difficult to know at what level of industrial concentration a town becomes a single-industry community. Rather a relative measure of industrial dominance was used. Thus the most natural resource dependent towns could be compared to the most public service dependent towns, and so on.

Four types of community structure are used; natural-resource dominant communities, public services dominant communities, and industrially diversified communities. There were also communities which fell in an "other" category. Within each size class towns were divided into quartiles based on their industrial structure. Hence, one-quarter of the communities were allocated to each industrial structure class.

The natural resource dominant communities include the 25% of communities (within each size class) that are the most dependent upon the natural-resource sector for the towns payroll. This is different then identifying single-industry communities, for which one needs a sense of the absolute dependence of the community in a single sector. Similarly, the public services dominant sector includes the one-quarter of communities with the largest public services sectors. The diversified group contains the 25% of communities which have the most diversified industrial structure (based on the distribution of payroll) as measured by the Herfindal index, a commonly used measure of diversification (or concentration). The remaining 25% of communities within each size class is left in the "other" category. This group has a work force which is neither among the most concentrated in natural resources or public services, nor the most diversified.

This classification method results in 108 small communities divided equally among the four industrial classifications (27 in each), 21 medium sized communities with approximately 5 in each industrial class, and 8 large communities.

The quartile approach used to classify the community resulted in cut-off points being established by the method. These cut-off points are the following: all small communities with more than 40% of the payroll in the natural resources sector were identified as natural resource-based. This cut-off for medium and large communities was 27%, allowing for the fact that they have larger service sectors than the small communities. For the public services sector, communities with greater than 44% of payroll in the sector were said to be public services dominant. And finally, communities for which the Herfindal index was less than .27 (for small), and .21 (medium) and .23 for large were said to be diversified. This difference in the cut-offs indicates that small communities are in general have more concentrated industrial structures than large.

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